PRESSURE TESTING OF NEW WATER SERVICE PIPEWORK

The Water Supply (Water fittings) Regulations 1999 require that all new water systems both above and below ground (inside and outside buildings) shall be tested hydraulically prior to commissioning.

For external below ground pipework where the supply pipe is newly installed and only includes a connection to the communication pipe, Northumbrian Water will not require an additional on-site pressure test. If a single joint is present, a pressure test may still not be needed – please check with your Northumbrian Water contact to confirm. In these cases we will accept the pipe manufacturer's test certificate or pressure guarantee.

It should be noted that Northumbrian Water does not guarantee pressures in its water mains and pressure can vary quite substantially over a 24-hour period. All testing methods should be completed in a manner that will not permit the contamination of the public water main with pressurised water.

The method of testing will vary depending upon the nature of the pipework. Those systems with plastic pipes need to make allowance for the expansion in the plastic material caused by the pressurisation process.

To satisfy the recommendations given in BS EN 805 fittings and pipework must be pressure tested at: 1.1 x (1.5 x maximum design pressure) or 1.65 x maximum operating pressure. This results in a slightly higher testing requirement than the statutory minimum required by Water Fittings Regulations and Scottish Water Byelaws in Schedule 2 Paragraph 5 which is at least 1.5 times the maximum working or operating pressure which the installation will be subjected to.

Example - If a system is designed to operate at a maximum working pressure of 5 bar:

Regulatory requirement as set out in the Water Fittings Regulations/Byelaws require the system to be pressure tested at - 1½ x 5 bar =7.5 bar.

BS EN 805 recommends a test pressure of 1.1 x maximum design pressure (MDP) where MDP = 1½ x maximum operating pressure 1.1 x [1½ x 5 bar] = 8.25 bar.

Pressure tests must be witnessed by Northumbrian Water unless the work is carried out by an industry approved WaterSafe plumber and the pressure test results are recorded by means of a data logger and forwarded onto Northumbrian Water for approval.

Following any pressure test, a disinfection regime must be carried out supported by analytical testing (see guidance notes 4 and 5).

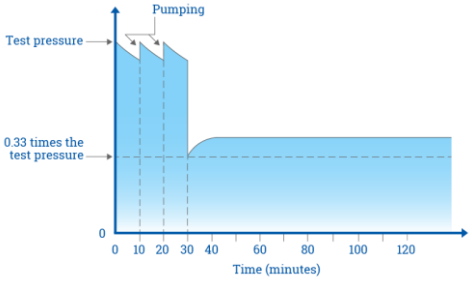
Hydraulic pressure tests

1. For systems that do **NOT** contain any plastic materials (e.g. rigid materials such as copper or stainless steel) the following test should be adopted:
    - The test pressure is measured at the lowest point on the system to be tested.
    - The whole system should be sealed, any valves should be capped off or isolated.
    - Before beginning any test, the pipework shall be charged with wholesome water and all air removed (ideally 24 hours before the test).
    - The whole of the system under examination is pressurised to the required value by pumping.
    - After which it is then isolated and left for a period of one hour.
    - The pressure should be maintained and not fall below that of the initial test pressure.

2. For systems that contain plastic materials, there are two acceptable methods of test procedure:

Test A

- The whole system under examination is subjected to the test pressure (1.1 times the maximum design pressure) by means of pumping.
- Once the test pressure is achieved the pressure is maintained by pumping for **30 minutes**, after which the test continues without any additional pumping.
- The pressure in the system is then carefully reduced to one third of the test pressure.
- The test is then maintained for a following **90 minutes** and is deemed satisfactory if the pressure does not drop further over the period and there is no visible signs of leakage.



Sect 4/R12.3a

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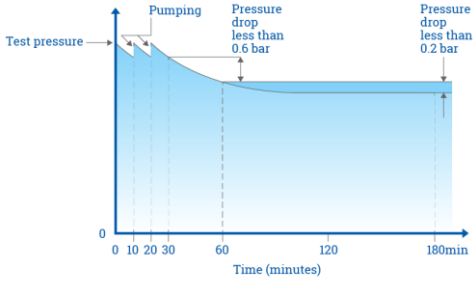
In accordance with Test Procedure A. BS EN806.11.3.2 and associated appendix.

Test B

- The whole system under examination is subjected to the test pressure (1.1 times the maximum design pressure) by means of pumping.
- Once the test pressure is achieved the pressure is maintained by pumping for **30 minutes**, after which the test continues without any additional pumping.
- Then without further pumping the test is deemed satisfactory if the test pressure does not fall more than 0.6 bar over the **next 30 minutes** and then a further 0.2 bar over the **following 120 minutes** and there is no visible sign of leakage.



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In accordance with Test Procedure B. BS EN805.11.3.2 and associated appendix.

Pressure testing data loggers

The pressure test results are collected using a pressure/recording device which allows accurate pressure readings to be obtained at all times throughout the test without interference from the pumping action.
The data loggers are calibrated to ensure accuracy every time and take into account factors such as temperature which can affect the recorded pressure in a pipeline, ensuring a more thorough pipe assessment.

The data logger can also contain GPS positioning which makes it easy to connect the test results to the pipe being assessed.

When carrying out a pressure tests using this method, all of the relevant test results including the pressure decay graph must be forwarded onto Northumbrian Water for approval.